

## ABSTRACT

**Actuality of theme.** The modern level of development of instrument engineering, mechanical engineering and other fields of science and technology require high accuracy of angular measurements. Traditional means of angle measurement do not always meet the needs. One of the main reasons for this situation is the insufficiently high accuracy of angle measurements and angle converters that set the angle scale in measuring instruments. Therefore, today the question arises of improving the accuracy of measurements with a minimal increase in costs.

**The object of research** is an interference null indicator.

**The subject of the study** is the process of measuring the scale coefficient of the gyroscope.

**The purpose of the work:** the study of the relative error of measuring the scale coefficient of the gyroscope with the specified accuracy of the zero indicator measurement.

Also, this work assumes that after completing the theoretical studies, an experiment will be conducted, based on the results of which appropriate conclusions can be drawn regarding the use of the null indicator for measurements.

A feature of the use of this interference zero indicator for the scale factor measurement stand is the use of a photoelectric multiplier in it, which significantly increases the accuracy of the measurement.

**Research methods:** The work uses methods and criteria for evaluating different constructions of the interference null indicator for the scale factor measurement stand.

**The scientific novelty** of the work is as follows: The use of a photoelectron multiplier in an interference null indicator for a scale factor measurement stand.

**The practical value** of the results obtained in the work is that the proposed option significantly increases the accuracy of the measurement.

**Structure and scope of work.** The master's thesis consists of an introduction, four chapters and conclusions.

In the introduction, a general description of the work is presented, an assessment of the current state of the problem is made, and the relevance of the research direction is substantiated.

In the first chapter, the only domestic enterprise working in this direction was described, as well as the structure, types and principle of operation of the laser gyroscope were considered.

In the second section, the quality of the product was evaluated and the structure and principle of operation of the null indicator were described. The structure and principle of operation of the BDIV were also described.

In the third section, the general requirements for the zero indication of angular measurement were formed, and an autocollimation zero indicator was developed.

In the fourth chapter, the startup project was developed and the opportunities and strategies for its implementation were analyzed.

**Keywords:** null indicator. dispersion, Kesters prism, reflecting surface, photomultiplier, scale factor.